

GREENWICH, *Hospital School.* (MM. E. and J. Riddle.)

| | | | |
|------------------|-----------------|--------------------------------|------------|
| Greenwich M.T. | | | |
| External contact | ^h 23 | ^m 5 ^s 38 | E. Riddle. |
| — | 23 | 5 36 | J. Riddle. |

“ Both observers imagined that they saw some undulation of an atmosphere surrounding the planet. The true contact probably had begun before it was noted by the observers.”

LIVERPOOL. 9-foot Equatorial Reflector, power 101. (Mr. Lassell.)
Distances of Centre of Mercury from Sun's Limb, E. and W.

| 1848. Nov. 9 | Greenwich M.T. Planet—2d Limb. | | | Greenwich M.T. 1st Limb—Planet. | | |
|-----------------|--------------------------------|--------------|--------------|---------------------------------|--------------|--------------|
| | ^h | ^m | ^s | ^h | ^m | ^s |
| | 0 | 0 | 53.1 | 3 | 8 | 13.0 |
| | | | | | | |
| | 4 | 15.2 | | 13 | 7.0 | |
| | 6 | 38.4 | | 15 | 0.7 | |
| | 9 | 12.7 | | 17 | 7.1 | |
| | 11 | 2.0 | | 19 | 47.4 | |
| | 15 | 22.2 | | 3 | 22 | 9.4 |
| | 51 | 42.6 | | | | |
| | 54 | 45.1 | | | | |
| | 0 | 56 | 50.8 | | | |

Distances of Centre of Mercury from Sun's Limb, N. and S.

| 1848. Nov. 9 | Greenwich M.T. S. Limb—Planet. | | | Greenwich M.T. Planet—N. Limb. | | |
|-----------------|--------------------------------|--------------|--------------|--------------------------------|--------------|--------------|
| | ^h | ^m | ^s | ^h | ^m | ^s |
| | 1 | 11 | 28.6 | 2 | 53 | 56.5 |
| | 1 | 14 | 57.6 | 2 | 56 | 32.6 |
| | 1 | 16 | 27.8 | 2 | 58 | 3.6 |
| | 1 | 19 | 7.6 | 3 | 0 | 3.6 |
| | 1 | 21 | 30.4 | 3 | 1 | 27.0 |

“ The day very fine, and the atmosphere pretty steady, though occasionally disturbed, especially in the early observations.”

ASHURST.* (Mr. Snow.)

| | | | |
|-----------------------|-----------------|-----------------|-------|
| Ashurst Sid. Time. | | | |
| External contact..... | ^h 14 | ^m 20 | 45.55 |
| Internal contact..... | 14 | 21 | 7.55 |

5-foot equatoreal,
 power 75.
 “ On entering the sun's limb the planet was decidedly pear-shaped, but became pretty round on forming the internal contact.”
 A careful measure with the double-wire micrometer gave the diameter of the planet

$$=9''.63 \text{ at } 14^h 45^m \text{ Sid. Time.}$$

* Latitude 51° 15' 58" N.
 Longitude ... 0^h 1^m 10.1 W.

Transit of Mercury.

The first limb of the sun and the planet were each observed on the meridian over seven wires of the transit instrument.

First Limb of Sun at ^h14 ^m57 ^s58.57 Ashurst Sid. Time.

Mercury, centre..... ^h14 ^m59 ^s46.77 —

“The clock error well determined.

“The following differential observations were made with the 5-foot equatoreal, in Ashurst Sid. Time:—

Observations in R.A.

| Sun's 2d Limb. | Mercury, Centre. | Sun's 1st Limb. | Mercury, Centre. |
|--|--|--|--|
| ^h ^m ^s | ^h ^m ^s | ^h ^m ^s | ^h ^m ^s |
| 14 53 51.55 | 14 53 35.75 | 17 33 32.35 | 17 34 32.55 |
| 15 9 29.55 | 15 9 7.85 | 17 45 57.55 | 17 46 52.05 |
| 16 11 29.55 | 16 10 55.55 | 18 4 39.55 | 18 5 27.05 |
| 16 15 14.55 | 16 14 29.15 | 19 11 14.55 | 19 11 37.05 |
| 16 17 25.05 | 16 16 39.55 | 19 12 52.55 | 19 13 14.55 |

In Declination.

| Ashurst Sid. Time. | S.L.—Planet. | Ashurst Sid. Time. | Planet—N.L. |
|--|--------------|--|-------------|
| ^h ^m ^s | " | ^h ^m ^s | " |
| 14 57 30 | 741.5 | 19 16 40 | 449.4 |
| 15 14 40 | 809.2 | | |
| 16 19 55 | 845.5 | | |
| 17 20 20 | 993.2 | | |
| 17 21 55 | 998.3 | | |
| 17 24 40 | 1005.4 | | |
| 17 31 25 | 1030.8 | | |
| 17 42 30 | 1046.5 | | |

“The above are the results of observation merely.”

Dr. Foster observed the transit at Bruges. He remarks the extreme *blackness* of the planet compared with that of the spots, the intensities he estimates as 8: 5. The telescope used was an achromatic, by Brand of Bruxelles, an excellent defining instrument, power 200. Dr. Foster states, that the planet had rather the appearance of a *globe* than of a *disc*, and that the difference of blackness between the planet and the spots was less remarkable when he used a reflector with a red shade. A diagram accompanied Dr. Foster's letter.*

The Astronomer Royal mentioned at the meeting, that the transit of *Mercury* was observed, by many observers, with several telescopes at the Royal Observatory, and in different ways, (the image of the planet being received, in one instance at least, on a screen). An appearance bearing analogy to Baily's *beads* was seen only in one instance, by Mr. Main, who observed an image thrown on a screen. The Astronomer Royal also stated, that the steadiness of the planet and of the sun's limbs was much greater in the telescopes placed out of doors than in those under cover.

* Dr. Foster wishes to direct the attention of astronomers to the apparent connexion between spots in the sun and an extremely wet season.

Extract of a Letter from Professor Schumacher.

“The passage of *Mercury* here has shewn some curious circumstances.

“I must premise, that the limb of the sun was undulating, and that at Altona the instruments were shaken by many passing carriages.

“I could not observe the exterior contact. When I saw *Mercury* he had already somewhat entered, viz.:—

At $23^{\text{h}} 46^{\text{m}} 34^{\text{s}}$ Altona M.T.

“I saw a fine line of light between *Mercury* and the sun; but it disappeared immediately afterwards, and the separation was first visible and permanent at

$23^{\text{h}} 46^{\text{m}} 52^{\text{s}}$

“Dr. Petersen observed the same contact in the Meridian Circle during the culmination, at

$23^{\text{h}} 46^{\text{m}} 9^{\text{s}}$

“Dr. Olde and M. Sonntag observed the contacts;—

| | Exterior. | | | Interior. | | | |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|------|
| | ^h | ^m | ^s | ^h | ^m | ^s | |
| Mr. Sonntag... | 23 | 44 | 51 | 23 | 46 | 33 | M.T. |
| Dr. Olde..... | | | | 23 | 46 | 41 | |

“At Hamburg, M. Rümker observed with the meridian circle,—

Interior contact $23^{\text{h}} 46^{\text{m}} 40^{\text{s}}$ Hamb. M.T.

| | Exterior. | | | Interior contact. | | | |
|----------------|--------------|--------------|--------------|-------------------|--------------|--------------|------------|
| | ^h | ^m | ^s | ^h | ^m | ^s | |
| M. Weyer..... | 23 | 45 | 24 | 23 | 46 | 56 | Hamb. M.T. |
| M. G. Rümker — | — | — | 27 | | | | |
| M. Jürgensen . | | | | — | — | 58 | |
| M. Brymann. . | — | — | 47 | — | — | 52 | |

“Now if you will reduce the Hamburg Observations with -7^{s} to Altona M.T. you will see,

1. That my first moment agrees nearer than can be expected with the observations of M. Sonntag and M. Charles Rümker.
2. That my second moment comes near to the four Hamburg observers.
3. That Dr. Petersen is greatly in advance of all the other eight observers.

Meridian Observations of Mercury.

| | ^h | ^m | ^s | | Dec. | | |
|---|--------------|--------------|--------------|---------|---------------|-------------|---------------|
| At $23^{\text{h}} 46^{\text{m}} 42^{\text{s}}$ Hamb. M.T. | | | | Mercury | -17° | $3' 32''.2$ | M. Rümker. |
| $23^{\text{h}} 46^{\text{m}} 14^{\text{s}}$ Altona M.T. | | | | | -17° | $3' 39''.5$ | Dr. Petersen. |

M. Le Verrier has published a new theory of *Mercury* in the *Connaissance des Temps* for 1848, and promises tables founded on the theory. In the *Comptes Rendus* of the 13th of November last, he shews that his formulæ give the first internal contact, seen from the centre of the earth, at

| Paris M.T. | | | | | | |
|------------|----|----|----|--|--------------------|--|
| | h | m | s | | | |
| Nov. 8 | 23 | 16 | 43 | using the value of sun's diameter in the <i>Connaissance</i> . | | |
| | 16 | 47 | — | — | <i>N. Almanac.</i> | |
| | 16 | 58 | — | determined by himself, at = 32' dist ^{ce} 1 | | |

He remarks, that his formulæ make the phases of transit about 4 minutes *later* than the *Connaissance*, which is nearly 20^s *earlier* than the *Nautical Almanac*.

URANUS.

CAPE OF GOOD HOPE. In the Meridian. (Mr. Maclear.)

| 1847. | | | R.A. | | | N.P.D. | | | 1847. | | | R.A. | | | N.P.D. | | |
|----------|---|-----|-------|----|-------|--------|-----|--|---------|---|-----|-------|----|----|--------|-----|--|
| | h | m | s | ° | ' | " | | | | h | m | s | ° | ' | " | | |
| Sept. 19 | 1 | 3 | 52.17 | | | | ... | | Oct. 23 | 0 | 58 | 52.23 | 84 | 26 | 45.53 | | |
| 20 | | 3 | 43.78 | | | | ... | | 24 | | 58 | 43.75 | | | | ... | |
| 21 | | 3 | 35.49 | 83 | 57 | 37.19 | | | 25 | | 58 | 35.12 | | 28 | 31.12 | | |
| 25 | | 3 | 1.40 | | | | ... | | 27 | | 58 | 18.00 | | | | ... | |
| 26 | | 2 | 52.78 | | | | ... | | 28 | | 58 | 9.73 | | | | ... | |
| 28 | | 2 | 35.36 | | | | ... | | 29 | | 58 | 1.30 | | 31 | 55.60 | | |
| 29 | | 2 | 26.41 | | | | ... | | 30 | | 57 | 53.03 | | | | ... | |
| 30 | | ... | | 84 | 5 | 41.16 | | | Nov. 1 | | 57 | 36.81 | | | | ... | |
| Oct. 1 | | 2 | 8.93 | | 6 | 34.96 | | | 5 | | 57 | 5.24 | | | | ... | |
| 4 | | 1 | 42.14 | | | | ... | | 6 | | 56 | 57.67 | | 38 | 23.06 | | |
| 7 | | ... | | 12 | 8.25 | | | | 10 | | 56 | 28.12 | | | | ... | |
| 8 | 1 | 1 | 5.95 | | | | ... | | 11 | | 56 | 21.06 | | 42 | 4.22 | | |
| 12 | | ... | | 16 | 47.79 | | | | 13 | | 56 | 7.18 | | 43 | 26.60 | | |
| 13 | | ... | | 17 | 41.78 | | | | 15 | | 55 | 53.93 | | | | ... | |
| 16 | 0 | 59 | 54.03 | | | | ... | | 16 | | 55 | 47.40 | | 45 | 25.17 | | |
| 17 | | 59 | 45.02 | | | | ... | | 20 | 0 | 55 | 23.04 | | 47 | 52.74 | | |
| 18 | | ... | | 22 | 17.05 | | | | 23 | | ... | | | 49 | 31.01 | | |
| 20 | | 59 | 18.44 | | 24 | 4.02 | | | 25 | | ... | | | 50 | 35.41 | | |
| 21 | | 59 | 9.61 | | 24 | 53.67 | | | 27 | | ... | | 84 | 51 | 32.57 | | |
| 22 | 0 | 59 | 0.97 | 84 | 25 | 50.95 | | | | | | | | | | | |